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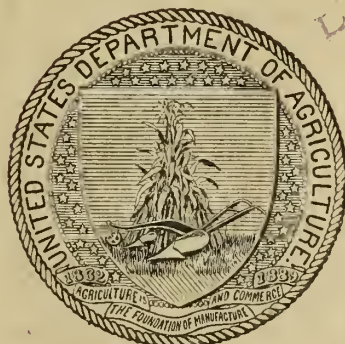
A. C. TRUE, Director.

## SPECIAL AND SHORT COURSES IN AGRICULTURAL COLLEGES.

BY

D. J. CROSBY,

OF THE OFFICE OF EXPERIMENT STATIONS.



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1903.

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### BULLETINS.

- Miscellaneous Bul. 1. Proceedings of the Second Annual Convention of the Association of American Agricultural Colleges and Experiment Stations, held at Knoxville, Tenn., January 1-3, 1889. Price, 10 cents.
- Bul. 7. Proceedings of the Fifth Annual Convention of the Association of American Agricultural Colleges and Experiment Stations, held at Washington, D. C., August 12-18, 1891. Edited by A. W. Harris and H. E. Alvord. Pp. 113. 1892. Price, 10 cents.
- Bul. 16. Proceedings of the Sixth Annual Convention of the Association of American Agricultural Colleges and Experiment Stations, held at New Orleans, La., November 15-19, 1892. Edited by A. W. Harris and H. E. Alvord. Pp. 176. 1893. Price, 10 cents.
- Bul. 20. Proceedings of the Seventh Annual Convention of the Association of American Agricultural Colleges and Experiment Stations, held at Chicago, Ill., October 17-19, 1893. Edited by A. C. True and H. E. Alvord. Pp. 100. 1894. Price, 5 cents.
- Buls. 23, 27, 39, 47, 59, 74, 88, 111, 122. Organization Lists of the Agricultural Colleges and Experiment Stations in the United States. 1895-1903. Price, 10 cents each.
- Bul. 24. Proceedings of the Eighth Annual Convention of the Association of American Agricultural Colleges and Experiment Stations, held at Washington, D. C., November 13-15, 1894. Edited by A. C. True and H. H. Goodell. Pp. 99. 1895. Price, 5 cents.
- Bul. 30. Proceedings of the Ninth Annual Convention of the Association of American Agricultural Colleges and Experiment Stations, held at Denver, Colo., July 16-18, 1895. Edited by A. C. True and H. H. Goodell. Pp. 100. 1896. Price, 10 cents.
- Bul. 41. Proceedings of the Tenth Annual Convention of the Association of American Agricultural Colleges and Experiment Stations, held at Washington, D. C., November 11-12, 1896. Edited by A. C. True and H. H. Goodell. Pp. 120. 1897. Price, 10 cents.
- Bul. 49. Proceedings of the Eleventh Annual Convention of the Association of American Agricultural Colleges and Experiment Stations, held at Minneapolis, Minn., July 13-15, 1897. Edited by A. C. True and H. H. Goodell. Pp. 100, fig. 1. 1898. Price, 10 cents.
- Buls. 51, 64, 78, 97, 114, 128. Statistics of the Land-Grant Colleges and Agricultural Experiment Stations in the United States for the years ended June 30, 1897-1902, inclusive. Price, 5 cents each.
- Bul. 65. Proceedings of the Twelfth Annual Convention of the Association of American Agricultural Colleges and Experiment Stations, held at Washington, D. C., November 15-17, 1898. Edited by A. C. True, W. H. Beal, and H. H. Goodell. Pp. 138. 1899. Price, 10 cents.
- Bul. 72. Farmers' Reading Courses. By L. H. Bailey, M. S., professor of horticulture, Cornell University. Pp. 36. 1899. Price, 5 cents.
- Bul. 76. Proceedings of the Thirteenth Annual Convention of the Association of American Agricultural Colleges and Experiment Stations, held at San Francisco, Cal., July 5-7, 1899. Edited by A. C. True, W. H. Beal, and H. H. Goodell. Pp. 112. 1900. Price, 10 cents.
- Bul. 79. Farmers' Institutes: History and Status in the United States and Canada. By L. H. Bailey, of Cornell University. Pp. 34. 1900. Price, 5 cents.
- Bul. 99. Proceedings of the Fourteenth Annual Convention of the Association of American Agricultural Colleges and Experiment Stations, held at Middletown, Conn., November 13-15, 1900. Edited by A. C. True, W. H. Beal, and H. H. Goodell. Pp. 198, pls. 3. 1901. Price, 15 cents.
- Bul. 110. Proceedings of the Sixth Annual Meeting of the American Association of Farmers' Institute Workers, held at Buffalo, N. Y., September 18 and 19, 1901. Edited by A. C. True, D. J. Crosby, and G. C. Creelman. Pp. 55. 1902. Price, 5 cents.
- Bul. 115. Proceedings of the Fifteenth Annual Convention of the Association of American Agricultural Colleges and Experiment Stations, held at Washington, D. C., November 12-14, 1901. Edited by A. C. True and W. H. Beal, for the Office of Experiment Stations, and H. H. Goodell, for the executive committee of the association. Pp. 134, charts 8, fig. 1. 1902. Price, 10 cents.

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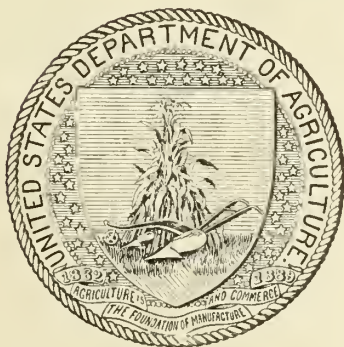
A. C. TRUE, Director.

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BY

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OF THE OFFICE OF EXPERIMENT STATIONS.

WASHINGTON:  
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## OFFICE OF EXPERIMENT STATIONS.

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## LETTER OF TRANSMITTAL.

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U. S. DEPARTMENT OF AGRICULTURE,  
OFFICE OF EXPERIMENT STATIONS,  
*Washington, D. C., October 26, 1903.*

SIR: I have the honor to transmit herewith and to recommend for publication a bulletin prepared by D. J. Crosby, of the Office of Experiment Stations, which summarizes information on special and short courses in agriculture and related subjects as offered by the colleges receiving funds from the Government. Such courses are coming to be an important feature of agricultural instruction, and the demand for information regarding them has led to the preparation of this bulletin.

Respectfully,

A. C. TRUE,  
*Director.*

Hon. JAMES WILSON,  
*Secretary of Agriculture.*





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# SPECIAL AND SHORT COURSES IN AGRICULTURAL COLLEGES.

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## INTRODUCTION.

One of the features of the recent forward movement in agricultural education has been the development of agricultural courses of study lower in grade and shorter than the regular four-year collegiate course. Sixty-three agricultural colleges and schools receive funds from the Government. Forty-four of these have organized special or short courses. This has been done to meet the needs of several classes of young people, who may be classified somewhat roughly as follows: (1) Those preparing to enter a four-year agricultural course; (2) those desiring instruction in agricultural subjects, but having insufficient scholastic attainments to carry the full collegiate course; (3) those unable to leave home for an extended course who desire instruction in some particular phase of agricultural science or wish to become proficient in some branch of agricultural practice; and (4) teachers desiring to prepare themselves to give instruction in nature study and elementary agriculture.

For students preparing to enter a four-year agricultural course, high-school agricultural courses two or three years in length have been organized; also in some instances one-year or two-year preparatory courses. These high-school courses also serve many more students as finishing courses—preparation for life work. This is the purpose served also by the so-called practical one-year and two-year agricultural courses organized for those of limited scholastic attainment—courses having a minimum of culture studies and pure science and a maximum of applied science. Thirty colleges now offer courses falling under one of these two classes, and all but nine of these courses are more than one year in length.

Great importance attaches to courses of this nature, and great care should be exercised in planning them, because it is the graduates of these courses more than the graduates of the four-year courses who go back to the farms. It will be said, and it is true, that the best and most thorough course of study is none too good for the farmer, that a man should be as well trained for the profession of farming as for the law or medicine; but it must be remembered that there were well-

defined courses of study in law and medicine long centuries before the farmer was considered worthy of instruction. In these professions there is now a great body of trained men and specialists from whose ranks special positions may be filled, while in agriculture the men of scientific attainments are comparatively so few and the demand for them in college, station, and other attractive and remunerative positions is so great that few bachelor-degree men feel that they can afford to go back to the farm. For the present, then, and for some years to come, the college of agriculture will have an important mission to perform through its secondary and short courses in the training of young men for the practice of agriculture.

For those actually engaged in agricultural occupations—the farmers, dairymen, and fruit growers, and their sons and daughters who are unable to leave home during the busy seasons—the special winter courses have been organized. These courses vary in length from a week or ten days to ten or twelve weeks. They are in most cases severely practical. They center around the judging pavilion, the laboratory, the dairy, and the cheese room, with lectures and readings to supplement the practicums. The nature of these courses is even more varied than their length of term. Twenty-two colleges offer courses in general agriculture, including more or less thorough instruction in plant production, animal husbandry, dairying, poultry culture, etc.; nineteen offer courses in general dairying; three in creamery management; two in farm dairying; two in cheese making; five in animal husbandry; nine in horticulture; four in poultry culture; three in domestic science, with more or less of horticulture, floriculture, and like subjects adapted to the needs of young women; and one each in agronomy, bee culture, forestry, beet-sugar production, farm mechanics, correspondence courses, botany, bacteriology, and entomology. Two colleges offer courses designated agriculture and horticulture; two, courses designated agriculture and dairying; and one, a course in agriculture, horticulture, and mechanic arts. Most if not all of these courses include instruction in a number of subjects not indicated in the names of the courses. There are also a large number of practicum courses and lecture courses which are confined to a single line of practice, such as cereal judging, stock judging, and the destruction of noxious insects. Six colleges offer a total of forty-four such courses.

The special winter courses are the utility courses, important because of their influence on the present-day agricultural practice and because of the influence of present practice on future practice. And present practice is sure to have a powerful influence on the young people who are to be the future farmers and on the quality of soil, farm machinery, and domestic animals with which these young people will have to do when they take charge of the farms. The special winter courses, then,

are an important and legitimate feature of agricultural instruction, capable of giving a strong uplift to present agricultural conditions.

And, finally, there are the summer schools for teachers and the one-year and two-year normal courses, in all of which nature study and elementary agriculture are important features. At least eight colleges have organized courses of this kind, and have found teachers prompt and eager to take advantage of the opportunities thus afforded them for preparing to bring the children committed to their charge into more intimate and sympathetic relations with their natural environment. Some of the States now require that instruction in the elements of agriculture be given in the public schools, and the agricultural colleges in those States are aiding to prepare the teachers for this work. More work of this kind needs to be done in order that country children may learn to know and appreciate the beauties and advantages of rural life, and that city children may be enabled to make use of their more limited opportunities for the employment of trees, shrubs, flowers, and other nature material in making the city more wholesome and beautiful, and may have their attention turned to the advantages and opportunities of rural life.

This brief review will give an idea of the extent and nature of the short-course and special-course work of the agricultural colleges. Seventy per cent of these institutions have already organized such courses, and others are planning to undertake the work. On the following pages will be found brief statements regarding the opening date, length, nature, admission requirements, and cost of attending these courses in the agricultural colleges in the several States and Territories. -

## DESCRIPTION OF COURSES.

### ALABAMA.

Alabama Polytechnic Institute, *Auburn*.

C. C. Thach, M. A., *President*.

#### SPECIAL ONE-YEAR COURSE IN AGRICULTURE.

Young men over 21 years of age who desire to study agriculture will be permitted, without examination, to enter any class under the professor of agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but they will be under the general college regulations, and will be required to have their time fully occupied.

They may attend the lectures in agriculture in all the classes, and engage in the practical work at the experiment station, in the field, stock yard, dairy, garden, orchard, vineyard, etc., and may thus in one year acquire valuable practical knowledge of scientific agriculture.



## EXPENSES.

There is no charge for tuition for a resident of Alabama. The library, incidental, and surgeon fees amount to \$12 per session, and are payable in advance. For nonresidents of the State there is also a tuition fee of \$20 per year. Board, lodging, fuel, lights, and washing will cost from \$122 to \$145.

## TWO-YEAR AGRICULTURAL COURSE.

For the benefit of those who are unable to continue at college four years and take one of the regular degree courses, an agricultural course covering two years of three terms each has been arranged.

## ARIZONA.

**University of Arizona, Tucson.**

K. C. Babcock, Ph. D., *President*.

## SHORT COURSE IN AGRICULTURE.

It has been planned to hold a short course in agriculture at Thatcher, beginning about the first of February, 1904, and continuing six weeks. The instruction is to include lectures on soil water, plant diseases, horticulture, and certain features of animal husbandry.

## CALIFORNIA.

**College of Agriculture of the University of California, Berkeley.**

Benjamin Ide Wheeler, Ph. D., LL. D., *President of the University*.

E. W. Hilgard, Ph. D., LL. D., *Dean of the College of Agriculture*.

## SHORT COURSE IN AGRICULTURE AND HORTICULTURE.

This course opens in October (October 6, 1903), and continues ten weeks.

Instruction in this course is given largely by means of lectures and prescribed reading, supplemented by recitations, demonstrations, and laboratory work. The subjects are divided into four groups: (1) Agriculture, (2) horticulture and entomology, (3) animal industry, and (4) foods and feeding. Under the subject of agriculture there are lectures on physics and chemistry of soils, fertilizers, grasses and forage plants, sugar-beet culture, and farmers' business methods; under horticulture and entomology, California horticulture, plant propagation, economic entomology, scale insects and insecticides; under animal industry, milk and its products, dairy bacteriology, dairy chemistry, breeds and breeding, veterinary science, and practical dairy work; and under foods and feeding, feeding farm animals, and human foods.

## REQUIREMENTS FOR ADMISSION.

The course is open to all persons of good moral character who are at least 17 years of age and who have a common school education. No entrance examinations are required.

## EXPENSES.

Certain books and material are required by the students, and may be purchased at the university cooperative store. Board and lodging may be obtained in private houses in Berkeley at from \$18 to \$30 per month.

For further particulars regarding this course address E. J. Wiekson, professor of agricultural practice, Berkeley.

## SHORT COURSE IN DAIRYING.

This course opens in October (October 6, 1903), and continues ten weeks.

Two hours of each day are spent in the lecture room, and the remainder of the time in the workroom and laboratory. Lectures and recitations are required on the following subjects: Physics and chemistry of soils, grasses and forage plants, milk and its products, dairy bacteriology, dairy chemistry, feeding farm animals, breeds and breeding, veterinary science, and steam engine. The practical work includes butter making, cheese making, and dairy laboratory work.

## REQUIREMENTS FOR ADMISSION.

The course is open to all persons of good moral character who are at least 17 years of age and have a common school education. No entrance examination will be required.

## EXPENSES.

A fee of \$15 for materials used is required of each student; also a deposit for breakage of \$5, part of which will be returned to the student at the close of the term. Each student will be required to procure white suits, costing about \$1 each, for use in the laboratories, and a suit of overalls and jacket for use in the engine room. Board and lodging may be obtained in private houses in Berkeley at from \$18 to \$30 per month.

For further particulars regarding the dairy course, address E. W. Major, assistant professor of animal industry, Berkeley.

## SUMMER SESSION.

The University of California holds annually a summer session, opening the last week of June and continuing six weeks, in which the College of Agriculture offers several courses. The courses given

during the summer session of 1903 were amateur horticulture in California, human foods, and entomology.

## CONNECTICUT.

**The Connecticut Agricultural College, Storrs.**

Rufus W. Stimson, A. M., B. D., *President*.

The Connecticut Agricultural College offers four twelve-week courses, a six-week poultry course, and a large number of ten-day courses.

### FARM DAIRY COURSE.

This course opens January 5, 1904, and continues twelve weeks.

The lecture subjects include crops for the dairy herd, feeding the dairy herd, dairy breeds and the dairy type, principles of breeding, dairy bacteriology, composition of milk, butter making, and diseases of the dairy cow. There is also practical work in separating and testing milk, ripening and testing cream, churning and butter making, preparing milk for market, judging and scoring dairy cattle, keeping records, etc.

### CREAMERY COURSE.

The creamery course opens January 5, 1904, and continues twelve weeks.

The subjects included in this course are the same as in the farm dairy course, but the work is with power machinery instead of hand machinery.

### POULTRY SHORT COURSE.

The poultry course opens January 5, 1904, and continues six weeks.

The topics considered in the class room include principles of breeding; breeds of fowls, ducks, geese, and pigeons, their origin and development; selecting and mating; general care; incubating and brooding, both natural and artificial; rearing; marketing; preparing for the show room; scoring; elementary chemistry of food; foods and feeding; poultry buildings, their location, arrangement, construction, and furnishing; drawing of plans and making of estimates; building materials, yards, and fences; growing of special crops for poultry; preservation and use of poultry manure; trees, shrubs, and vines for fruit and protection; elementary zoology and embryology; anatomy of fowls; physiology; sanitation; diseases and parasites of fowls; business methods; records.

The practical poultry work is carried on in the college poultry plant, which is extensive and well equipped. This work includes feeding and general care of the stock, operating incubators and brooders of different types, killing and dressing for general and special markets, caponizing, packing, hatching eggs, and breeding stock for shipment,



the use and care of ordinary carpenter tools, and many other incidental details necessary for successful poultry farming.

#### FORESTRY SHORT COURSE.

This course opens January 5, 1904, and continues twelve weeks.

Instruction is given on the fitness of certain trees for certain soils, planting and replanting, thinning and cutting, and the practicability of each landowner having his own nursery. Other studies may be taken with this course.

#### POMOLOGY SHORT COURSE.

This course opens January 5, 1904, and continues twelve weeks. It is open only to students over 20 years of age.

The course consists of lectures and field work. Some of the subjects treated are: The propagation of fruit trees; location and laying out of orchards; methods of protection, cultivation, pruning, and spraying; and insects and special diseases. The course is varied to meet the needs and requirements of the students applying.

#### TEN-DAY COURSES.

Courses covering ten days each are arranged in groups for the benefit of those who can spare only a few days from home duties. Students applying for admission to any of these courses may come Monday night and go a week from the next Saturday morning.

*January 5-15.*—(1) Practice with hand separators and testing milk and cream; (2) general entomology; (3) blacksmithing, including the mending of farm tools and sharpening and tempering them; (4) stable construction, ventilation, drainage, and hygiene; (5) library use and management; (6) economic history of the United States; (7) injurious insects and plant diseases; (8) commercial fertilizers; (9) the taking of measurements, fitting and making of shirt waists, stocks, and ties; and (10) cooking—lectures, demonstrations, and practice.

*January 19-29.*—(1) Practice in cream ripening; (2) judging and scoring dairy cattle and other farm animals; (3) economic entomology; (4) carpentering; (5) diseases of the digestive system of the horse and their treatment; (6) road construction; (7) vegetable forcing; (8) the principles of dressmaking; (9) cooking; and (10) table service.

*February 2-12.*—(1) Practice in churning, working, and packing butter; (2) common diseases of the cow; (3) bee keeping; (4) mechanical drawing, including designs for buildings; (5) surveying—a course for foremen and inspectors on construction work; (6) drafting—instruction in the use of a dressmaking system and practice in drafting, cutting, and fitting; and (7) needlework pertaining to dressmaking.

*February 16-26.*—(1) Lectures on feeding animals; (2) pomology—propagating and pruning fruit trees; (3) unsoundness in the horse; and (4) poultry production.

*March 1-11.*—(1) Dairy herd records and accounts and creamery bookkeeping; and (2) obstetrics, especially of the cow.

#### REQUIREMENTS FOR ADMISSION.

No examination is required for admission to any of the short winter courses. Candidates for the dairy and creamery courses must be 16 years old or older. Candidates for the pomology course 20 years old or older. All other candidates 15 years old or older.

#### EXPENSES.

While expenses always vary with different students, the following is considered a fair estimate for the different courses:

12-week courses.....	\$40 to \$60
6-week poultry course .....	\$25 to \$35
10-day courses.....	\$7 to \$10

#### SUMMER SCHOOL IN NATURE STUDY AND COUNTRY LIFE.

The Connecticut Agricultural College offers summer-school work for teachers and others in nature study and country life, beginning about the first week in July and continuing three weeks. Some of the subjects of instruction are as follows: Our common birds, insects, geology, botany, landscape gardening, forestry, flower growing, soils, farm crops, cereals and grasses, vegetable growing, plant enemies, farm animals, stock feeding, dairying, and poultry culture. No charge is made for tuition or room rent, and table board is furnished at \$4 a week.

#### DELAWARE.

**Delaware College, Newark.**

George A. Harter, M. A., Ph. D., *President.*

J. A. Foord, B. S. A., M. S., *Professor of Agriculture.*

#### SHORT WINTER COURSE.

This course will open January 5, 1904, and continue ten weeks.

An opportunity will be presented to students to specialize in either horticulture and vegetable gardening, or animal husbandry and dairying. They will also be allowed to take up work in soils, fertilizers, and manures; economic entomology; diseases of plants and animals; poultry culture; farm management and accounts; shop work, including practice in running small engines; and elementary botany.

#### REQUIREMENTS FOR ADMISSION.

No examinations are required for admission.

#### EXPENSES.

There is no tuition fee. Board and room cost from \$4.50 to \$6 per week. The total expense will range from \$50 to \$65.

## TWO-YEAR AGRICULTURAL COURSE.

Delaware College also provides a two-year course in agriculture, not leading to a degree. The studies, with few exceptions, are closely related to agriculture.

## GEORGIA.

**Georgia State College of Agriculture and Mechanic Arts, Athens.**

H. C. White, Ph. D., *President*.

## SHORT WINTER COURSE.

This course opens the first Monday in January and continues twelve weeks. Instruction in dairying begins February 1.

The winter course includes instruction in the following subjects: (1) Agriculture—farm equipment, management, buildings, etc.; farm crops and their production; soils and their classification and management. (2) Horticulture—planning, laying out, and planting the orchard; landscape gardening; school gardening; a general study of fruit and vegetable production; practical work in pruning and training. (3) Dairying and animal husbandry—principles of breeding; study of important breeds; stock feeding; care of the cow, and of milk and its products; veterinary science; and practical dairy work. (4) Poultry raising and bee keeping. (5) Agricultural chemistry—lectures and laboratory work. (6) English—grammar, composition, and literature. (7) Mathematics—regular university courses and special classes in arithmetic, farm accounting, and bookkeeping. (8) Farm engineering—surveying, terracing, road building, etc. (9) Law of the farm—lectures on business law relating to land, timber, crop liens, renting, trespass, etc.

## REQUIREMENTS FOR ADMISSION.

There is no requirement for admission but a good common school education and a minimum age limit of 15 years.

## EXPENSES.

There is no charge for tuition fees or dormitory rooms; \$40 will cover all expenses.

## ONE-YEAR COURSE IN AGRICULTURE, HORTICULTURE, AND DAIRYING.

This course opened September 16, 1903, and will continue until the commencement in June, 1904.

This course includes the short winter course. It is so planned as to lead up to the work beginning in January, and after the close of the winter course carries on and expands the instruction up to the end of the session. The subjects discussed in the winter course are treated throughout the year, and instruction is also given in botany during the last half year. The requirements for admission are the same as

in the winter course, and the expenses for the full year will be about three times as much as for the winter course.

## IDAHO.

**College of Agriculture of the University of Idaho, Moscow.**

James A. MacLean, Ph. D., *President.*

H. T. French, M. S., *Professor of Agriculture and Director of the Experiment Station.*

### SPECIAL COURSE IN FARM DAIRYING AND HORTICULTURE.

The winter course will open after the holiday vacation and continue from four to six weeks. It will embrace a series of lectures in animal husbandry; the handling of dairy products; and horticulture, both practical and scientific.

#### REQUIREMENTS FOR ADMISSION.

No examinations are required for admission.

#### EXPENSES.

There will be no fees of any kind. Table board can be procured in the students' club at \$2 per week, and rooms in private houses at \$1 per week. Board and lodging in private boarding houses will cost from \$4 to \$4.50 per week.

### TWO-YEAR AGRICULTURAL COURSE.

The University of Idaho also offers a practical course in agriculture and horticulture, extending over a period of two years. "Instruction in this course has been arranged so as to cover the more practical phases of the work, with the omission to some extent of technical work, based on a more thorough knowledge of the sciences." It is "designed to meet the needs of those who are not prepared to enter the regular college course in agriculture, and to make it possible for those who can not devote four years to study to obtain the benefit derived from scientific training in agriculture and horticulture and closely related sciences."

Students are received from the common schools under the rules governing entrance to the preparatory department.

## INDIANA.

**School of Agriculture of Purdue University, Lafayette.**

Winthrop E. Stone, Ph. D., *President of the University.*

William C. Latta, M. S., *Professor of Agriculture, in charge of Winter School of Agriculture.*

This institution maintains a winter school of agriculture, which comprises four short courses, opening Tuesday, January 5, 1904, and continuing ten weeks.

## COURSE IN AGRICULTURE.

The required subjects in this course are soils, manures, and crops, 30 lectures; agricultural physics, 20 three-hour lecture and laboratory periods; chemistry of soils, manures, and fertilizers, 20 lectures; live stock management, 20 lectures; care of farm animals, 20 lectures and 10 two-hour clinics, and shop work in wood, 40 hours.

In addition to the required subjects, there are electives, as follows: Economic botany, 10 hours; economic entomology, 10 lectures; vegetable parasites, 5 lectures, with quizzes on the diseases of plants and their causes; farm sanitation, 5 lectures; examination for soundness and veterinary clinic, 30 hours; farm buildings, 10 three-hour periods, and iron forging (for those who have had agricultural physics), 20 exercises.

Instead of the elective work in botany, entomology, vegetable parasites, and farm sanitation, the student may elect work with beef and dairy cattle, and instead of the veterinary work he may take work in the horticultural laboratory.

## COURSE IN HORTICULTURE.

Fourteen subjects are offered in this course, as follows: Fruit and vegetable growing, 20 lectures; commercial orcharding, market gardening, economic entomology, forestry, and economic botany, 10 lectures each; landscape gardening, 5 lectures; chemistry of soils, manures, and fertilizers, 20 hours; farm sanitation, 5 lectures; vegetable parasites, 5 lectures; farm buildings, including lectures and practice in drawing plans of buildings, 10 three-hour periods; soils, manures, and crops, 30 hours; shopwork in wood, 20 three-hour periods, and horticultural laboratory, 20 two-hour periods.

## COURSE IN ANIMAL HUSBANDRY.

This course includes the following thirteen subjects: Lectures and practice in judging beef cattle, 30 two-hour periods; lectures and practice in judging dairy cattle, 30 two-hour periods; lectures and practice in judging swine, 15 two-hour periods; lectures and practice in judging sheep, 15 two-hour periods; lectures and practice in judging horses, 10 two-hour and 10 three-hour periods; live-stock management, 20 hours; care of farm animals, 20 lectures and 10 two-hour clinics; examination of horses for soundness, 10 lectures and 10 clinics; agricultural physics, 20 three-hour periods; soils, manures, and crops, 30 hours; farm buildings—lectures and practice in drawing plans—10 three-hour periods; forage crops, 20 hours, and chemistry of soils, manures, and fertilizers, 20 hours.



## COURSE IN DAIRYING.

The work in dairying is planned with special reference to the creamery-butter maker on the one hand and the producer of milk for the creamery, cheese factory, farm-butter making, and retail delivery on the other hand. In both courses instruction is given on milk and its products, testing, bacteriology, dairy chemistry, dairy problems, dairy cattle, and scoring butter. In the course for creamery-butter makers additional instruction is given in creamery management, boiler and engines, creamery machinery, and creamery practice; and in the course for the producers of milk, on diseases of dairy cattle; barns and silos; chemistry of soils, manures, and fertilizers; forage crops; soils, manures, and crops; city milk; farm dairy practice, and live-stock management.

## REQUIREMENTS FOR ADMISSION.

Applicants for admission to these courses should be at least 16 years of age and have a fair common school education. No entrance examinations are required.

## EXPENSES.

The estimated expenses for an Indiana student are as follows:

Room rent (10 weeks at \$1 per week).....	\$10
Board (10 weeks at \$3 per week).....	30
Incidental fees (for those without scholarship).....	10
Laboratory fee.....	5
Books (largely optional).....	10
Visits of inspection and miscellaneous expenses (optional with the student) .....	15
Total.....	80

Two free scholarships are offered to each farmers' organization in Indiana. They will effect a saving to the student of \$10 per term in the winter course.

Students outside of Indiana will be required to pay a tuition fee of \$10.

## TWO-YEAR AGRICULTURAL COURSE.

Purdue University offers a two-year agricultural course, which includes in the main the purely agricultural subjects of the regular four-year course and omits those of general educational value.

## IOWA.

**Iowa State College of Agriculture and Mechanic Arts, Ames.**

Albert B. Storms, D. D., *President*.

Charles F. Curtiss, B. S., M. S., *Dean of the Division of Agriculture*.

## ONE-YEAR COURSE IN DAIRYING.

The one-year course opens January 4, 1904, and continues through one term of nineteen weeks and one term of sixteen weeks. Students completing the course receive certificates.

The course of study is as follows: First term—Dairy practice in butter making, six days per week; lectures on butter making, milk testing, dairy machinery, bookkeeping, the bacteriology of milk, and feeding and judging dairy stock. Second term—Dairy practice, six days per week; lectures on the preparation of ice cream and ices, cheese making, technology of milk, feeding dairy stock, dairy chemistry, and scoring butter and cheese.

#### REQUIREMENTS FOR ADMISSION.

Students taking this course must be qualified for work in the college department and will be expected to furnish satisfactory evidence of a thorough knowledge of all branches taught in the common schools.

#### EXPENSES.

No charges are made for tuition to residents of Iowa. Nonresidents pay \$24 per year. The fees and incidental expenses during the year are as follows: Janitor fee, \$5; lighting, heating, and incidentals per week, 40 to 55 cents; room rent per term, \$3, and hospital fee, per term, \$2.50.

#### ONE-TERM COURSE IN DAIRYING.

This course opens January 4, 1904, and continues sixteen weeks. The same studies are pursued in this as in the first term of the one-year course.

#### REQUIREMENTS FOR ADMISSION.

None but experienced butter makers are advised to take this course.

#### EXPENSES.

The fees for this course will be \$12, which is intended to cover expenses involved in securing extra instructors and material for the course.

#### SHORT COURSE IN CORN JUDGING.

This course opens January 4, 1904, and continues two weeks.

Instruction will be given in the methods of selecting, storing, purchasing, testing, and preparing seed corn for planting; also in the methods of cultivation, characteristics, and adaptability of different varieties to the various sections of the State. A comparison of the efficiency of different makes of planters and cultivators will be made.

#### SHORT COURSE IN STOCK JUDGING.

This course opens January 4, 1904, and continues two weeks.

It will be devoted exclusively to judging and score-card practice with horses, cattle, sheep, and hogs, and to lectures on feeding these animals. Arrangements will be made so that students in this course may take the course in corn judging, and vice versa.

## EXPENSES.

The tuition fee for either or both of the two-week courses will be \$2.

## KANSAS.

**Kansas State Agricultural College, Manhattan.**

E. R. Nichols, M. A., *President*.

## DOMESTIC SCIENCE SHORT COURSE.

This course consists of two fall terms of twelve weeks each, beginning with the close of September (September 29, 1903). The first year the course consists of lectures and practice in cooking, 15 hours per week; sewing, 15 hours, and drawing, 5 hours. In the second year students take lectures and practice in cooking 8 hours per week; home nursing, 2 hours; physiology and hygiene, 5 hours; vegetable gardening and floriculture, 5 hours, and dressmaking, 10 hours.

## FARMERS' SHORT COURSE.

This consists of two winter terms of twelve weeks each, beginning with the opening of the regular winter term (January 5, 1904). The subjects of instruction (each five hours per week) for the first term are crop production, feeds and feeding, breeds of live stock, stock judging, horticulture, and carpentry; for the second term, botany, elementary physics, farm mechanics and management, diseases of farm animals, grain judging, and blacksmithing or traction engines.

## FARM DAIRY COURSE.

The farm dairy course opens January 5, 1904, and continues twelve weeks.

Five hours per week are given to each of the following subjects: Dairying, crop production, feeds and feeding, breeds of live stock, stock judging, carpentry, and dairy practice.

## DAIRY COURSE.

This course opens January 5, 1904, and continues twelve weeks.

Five hours each per week are given to dairying, feeds and feeding, butter and cheese making, and boiler and engine; two and one-half hours each to diseases of animals and bookkeeping, and ten hours to dairy practice.

## REQUIREMENTS FOR ADMISSION.

Persons between the ages of 18 and 21 will be admitted upon presentation of common-school diploma, grammar-school certificate, teacher's certificate, or high-school diploma, or upon passing an examination in the following subjects: Reading, writing, spelling,



arithmetic, grammar, geography, physiology, and United States history. Persons over 21 will be admitted without examination, but should have sufficient education to enable them to understand the simple text-books used, and to handle readily problems in common and decimal fractions and percentage.

#### EXPENSES.

Tuition is free in all courses, and no charge is made for incidental or contingent expenses. Board with furnished room can be procured in private families at from \$2.50 to \$3 per week. Board in students' clubs costs from \$1.50 to \$2.25 per week. Furnished room without board can be obtained at from \$3.50 to \$5 per month.

#### KENTUCKY.

**Agricultural and Mechanical College of Kentucky, Lexington.**

James K. Patterson, Ph. D., LL. D., *President*.

#### SHORT WINTER COURSE IN AGRICULTURE.

The short course opens January 4, 1904, and continues ten weeks.

The aim of the course is to give ambitious young farmers accurate and practical information on such important topics as manures and commercial fertilizers; agricultural chemistry; soils and their origin; plant life on the farm; vegetable and fruit growing; diseases of plants; injurious insects; the principles of veterinary science, and the treatment of the simpler ailments of farm animals; care and feeding of live stock; the dairy cow; milk and the manufacture of butter and cheese.

In such subjects as will permit, actual practice will be given in the manipulation of materials and appliances of study, such as the care of milk, practical butter making, spraying plants for injurious insects and diseases, and in horticulture the practices of seed sowing, pruning and training, grafting, etc.

#### REQUIREMENTS FOR ADMISSION.

No examinations are required for admission to this course, the only requirements being that the applicant be of good moral character, have a good common school education, and be at least 16 years of age.

#### EXPENSES.

To residents of Kentucky instruction in this course will be free, the only expenses being the cost of a few books and other necessary incidentals, together with board and room and other personal expenses. Board and room can be secured at prices varying from \$3 to \$5 per week, so that the total expenses of the student during his entire ten weeks' stay need not exceed from \$35 to \$50.

## LOUISIANA.

Louisiana State University and Agricultural and Mechanical College,  
Baton Rouge.

Thomas D. Boyd, M. A., LL. D., *President*.

William C. Stubbs, Ph. D., *Professor of Agriculture*.

## SHORT AGRICULTURAL COURSE.

A two-year agricultural course is offered. During the first year the subjects of instruction include English, mathematics, agriculture, and the sciences related to agriculture. The work of the second year is almost wholly agricultural.

## REQUIREMENTS FOR ADMISSION.

Students entering this course must be 16 years old, or older, and may take mathematics and English with other classes.

## EXPENSES.

Tuition is now free to all, but beginning with the school year 1904 nonresidents will be charged a tuition fee of \$60 per annum. The annual expenses for maintenance are as follows:

Board, washing, fuel, and lights .....	\$108
Surgeon's fee and medicine fee .....	8
Furniture rent .....	5
Incidental fee .....	5
Total .....	126

To this should be added the cost of text-books, clothing, drawing instruments, and laboratory fees. The laboratory fees in chemistry are \$10; botany, \$2.50; and zoology, \$2.50.

## MAINE.

The University of Maine, Orono.

George Emory Fellows, M. A., Ph. D., *President*.

## GENERAL AGRICULTURE AND DAIRYING.

This course opens January 26, 1904, and continues six weeks.

The required subjects are chemistry of plant and animal nutrition, dairying, feeds and feeding, business side of the farm, dairy practice, and shopwork. In addition, the students elect two subjects from the following: Breeds and breeding, crop production, injurious insects and fungi, bacteria of the dairy, diseases of animals, and sheep husbandry.

## POULTRY MANAGEMENT.

The course in poultry management opens March 29, 1904, and continues three weeks.

It includes instruction in embryology, buildings and appliances, incubation, breeds, and egg production, as well as laboratory work in these subjects.

#### COURSE IN HORTICULTURE.

This course opens March 8, 1904, and continues three weeks.

The following are the subjects of instruction: Chemistry of soils and fertilizers, chemistry of plants, how plants feed, plant propagation, orchard culture, small fruit culture, vegetable gardening, insects and fungi, and spraying of plants.

#### REQUIREMENTS FOR ADMISSION.

The short winter courses may be taken by anyone who can take them with profit.

#### EXPENSES.

Tuition is free. The cost of room and board will be from \$3.50 to \$4 per week. Students in dairying are required to provide themselves with two white-drilling suits, which can be obtained at Orono.

#### HIGH SCHOOL AGRICULTURAL COURSE.

The school course opened for the first time October 13, 1903.

It consists of five terms extending over two years. The work will be almost exclusively along lines of practical agriculture, and will be independent of and distinct from that of the college courses in agriculture. The course is open to students 15 years old who are prepared for advanced grammar or high-school work. Tuition is free. Board and room cost from \$3.50 to \$4 per week.

#### MARYLAND.

**Maryland Agricultural College, College Park.**

R. W. Silvester, *President*.

W. T. L. Taliaferro, B. A., *Professor of Agriculture*.

Harry J. Patterson, B. S., *Director, Agricultural Experiment Station*.

#### SHORT WINTER COURSE IN AGRICULTURE.

This course opens January 6 and continues ten weeks.

The subjects for instruction and the allotment of hours are as follows: Farm crops and cultivation of the soil, 10; plant production, 10; farm live stock, 20; tobacco, 6; stock feeding, 9; agricultural chemistry, 10; manures, 10; farm accounts, 12; dairying, 40; veterinary science, 20; carpentry, blacksmithing, and pipe fitting, 50; plant physiology and pathology, 15; economic entomology, 20; horticulture, 30; road construction, 5; and principles of citizenship, 10.

## REQUIREMENTS FOR ADMISSION.

No examination is required for admission

## EXPENSES.

There is no charge for tuition, and it is estimated that the entire expense, including board, need not be over \$50.

## TWO-YEAR AGRICULTURAL COURSE.

The Maryland Agricultural College also offers a two-year course in agriculture open to students able to make an intelligent use of English and arithmetic, and having a knowledge of United States history. The course is intensely practical, and is made up almost entirely of agricultural and industrial subjects.

There are no charges for tuition. The cost of board, heat, light, and room for regular students is \$150 per year. In addition to this, there are laboratory, breakage, and physician's fees, amounting to \$15.

## MASSACHUSETTS.

**Massachusetts Agricultural College, Amherst.**

Henry H. Goodell, LL. D., *President*.

William P. Brooks, Ph. D., *Professor of Agriculture*.

The Massachusetts Agricultural College offers short winter courses in dairying, horticulture, and bee culture, and a two-year course for women.

## SHORT WINTER COURSE IN DAIRYING.

Work begins the first Wednesday in January and continues ten weeks.

The subjects of instruction and the number of exercises per week are as follows: Soils, manures, fertilizers, crops, and rotations, 4; breeds and breeding of dairy stock, including stock judging, 2; fodders and feeding farm live stock, 1; stable construction and sanitation, 1; common diseases of stock, 1; dairy products, 2; chemical composition of milk and milk products, 1; botany, 2; horticulture, 3; entomology, 3; dairy practice, including testing, use of separators, butter making, etc., 4, and exercises in horticulture, 1.

## SHORT WINTER COURSE IN HORTICULTURE.

This course begins the first Wednesday in January and continues ten weeks. It will not be given unless at least eight students register.

The subjects of instruction and number of exercises per week are as follows: Soils, tillage, manures, etc., 4; plant propagation and pruning, 3; general fruit growing, 3; market gardening, 3; botany, 4;

entomology, 3, and practice work in seed testing, seeding, grafting, budding, transplanting, judging fruit, etc.

#### COURSE IN BEE CULTURE.

This is a two-week course beginning the fourth Wednesday in May. It will not be given unless at least six students register.

The subjects of instruction and the total number of hours for each are as follows: The structure of bees, with special reference to their work, 5; flowers and fruits, in their relation to bees, 10; honey crops and how to grow them, 5; bees and bee-keepers' supplies, 10; work in the apiary, 20, and instruction by specialists, 4.

#### REQUIREMENTS FOR ADMISSION.

The short courses are open to persons of both sexes. Applicants must be at least 16 years of age and must furnish papers certifying good moral character. No entrance examination is required.

#### EXPENSES.

Tuition is free to citizens of the United States. The usual fees are charged for apparatus and material used in laboratories. The cost of board varies from \$3.25 to \$4 per week; room rent costs \$15 to \$45 per year, and steam heat \$13 a year.

#### TWO-YEAR AGRICULTURAL COURSE FOR WOMEN.

The course of instruction includes French, German, free-hand drawing, the sciences related to agriculture, and the following agricultural subjects: Soils, fertilizers and cultivation; propagation and pruning, vegetable gardening, pomology, greenhouse construction and management, landscape gardening, floriculture, and vegetable pathology.

#### REQUIREMENTS FOR ADMISSION.

Candidates for admission must be at least 16 years of age and must present testimonials of good character from the principal of the last school attended.

#### EXPENSES.

There is no charge for tuition. Board may be obtained in the dining hall at from \$3.25 to \$4 per week, and rooms in the same building, so far as the accommodations will permit.

#### MICHIGAN.

*Michigan State Agricultural College, Agricultural College.*

Jonathan L. Snyder, A. M., Ph. D., *President.*

Clinton D. Smith, M. S., *Dean of Short Courses and College Extension Lecturer.*



## BEET-SUGAR PRODUCTION.

The course in beet-sugar production begins the first week in February and ends about the middle of June.

During the first half of the course the student is given training in general preparatory chemistry. During the second half the work is devoted to the analysis of materials found in the sugar factory and instruction in factory management, methods of growing the crop, and testing the seed for purity and vitality.

## CREAMERY MANAGEMENT.

This course opens January 5, 1904, and continues through two terms of six weeks each.

Besides the daily work in the butter room, lectures and exercises are given on methods of keeping books and conducting the regular business of the creamery, on the chemistry and physics of milk and its products, and on the mechanics of the separator and churn. Drill is given in the care and operation of the boilers, engines, shafting, belts, on pipe fitting, milk testing, milk production, butter judging, etc.

## CHEESE MAKING.

An election is allowed of a four-week course in cheese making in place of the second six weeks of creamery management.

Instruction consists largely of practical work at the cheese vat, followed out along scientific lines. The use of rennet tests, starters, curd test, and the Babcock test are among the points given especial attention. The use of the lactometer and Babcock test for the detection of watering and skimming milk is taught, and the practical application of the test to everyday cheese factory operations is emphasized. There are also lectures and demonstrations in bacteriology and chemistry as related to problems in cheese making.

## FRUIT CULTURE.

This course opens January 5, 1904, and continues six weeks.

It will embrace pomology, horticultural manipulations, insects and fungus diseases, agricultural chemistry, the soil, floriculture, vegetable gardening, and greenhouse manipulations.

## LIVE STOCK AND GENERAL FARMING.

This course opens January 5, 1904, and continues through two terms of six weeks each.

Some of the subjects considered are: Breeds and their characteristics, stock judging, breeding and management, stock feeding, meat cutting, veterinary science, soils and crops, plant life and plant diseases, horticulture, bookkeeping and business methods, hygiene, agricultural

chemistry, butter making, bacteriology, agricultural physics and mechanics, and lectures by specialists on live stock and on the legal rights and obligations of farmers.

#### REQUIREMENTS FOR ADMISSION.

Students of either sex, 15 years old or older, are admitted to any of the special courses without examination. Only those who have had experience will be admitted to the creamery management or cheese-making course.

#### EXPENSES.

Residents of the State are charged \$5 for six weeks or \$7.50 for twelve weeks. Nonresidents will be charged an additional tuition fee. The cost of board and lodging will be about \$3.50 per week.

### MINNESOTA.

**School of Agriculture of the University of Minnesota, St. Anthony Park.**

Cyrus Northrop, LL. D., *President of the University.*

William M. Liggett, *Dean of the School of Agriculture.*

The School of Agriculture of the University of Minnesota offers short winter courses in dairying and farming.

#### DAIRY SCHOOL.

The dairy school this year opened November 23, 1903, and continued four weeks.

Instruction is divided into seven courses, as follows: (1) Lectures covering the entire field of dairy husbandry; (2) practical work in the butter room; (3) practical work in the cheese room in the manufacture of flats, Cheddars, Swiss, brick, Edam, and Gouda cheese; (4) practical work in the laboratory, examining and testing milk; (5) practical engineering, steam fitting, and plumbing; (6) practical work in factory bookkeeping, and (7) practical work with cultures and starters.

#### REQUIREMENTS FOR ADMISSION.

No entrance examination is required, but it is required that persons who intend to take this course shall have had at least one season's experience in the creamery or cheese factory.

#### EXPENSES.

A registration fee of \$15 is required of each student. Students can board in either Minneapolis or St. Paul and reach the school by street car, or board can be secured near the school for from \$3.50 to \$4 per week. Each student is required to procure two white suits costing about \$1 each. Applications for admission should be made to T. L. Haecker, St. Anthony Park, Minn.

## SHORT COURSE FOR FARMERS.

This course opens January 12, 1904, and continues eight weeks.

Monday of each week will be devoted to visiting stock yards, flour and flax mills, greenhouses, stock farms, etc. The several courses of instruction are as follows: Agronomy, including soils, drainage, roads, fences, rotations, etc.; dairy husbandry, 16 lectures; animal husbandry, 48 lectures (including 20 lectures on breeds of cattle, sheep, and swine, 8 lectures on animal breeding, and 20 lectures on the feeding and management of beef cattle, sheep, and swine); agricultural chemistry; farm mechanics; farm implements; dressing and curing meats; farm accounts; farm horticulture; veterinary science; fungus diseases of plants; poultry, and economic entomology.

## REQUIREMENTS FOR ADMISSION.

No entrance examination is required.

## EXPENSES.

A fee of \$10 will be charged for this course. Board may be secured in Minneapolis, St. Paul, or near the college, at \$3.50 to \$4 per week. Applicants for admission should address James M. Drew, St. Anthony Park, Minn.

## SECONDARY AGRICULTURAL COURSE.

The School of Agriculture also offers a high-school agricultural course, covering three years of twenty-four weeks each. This is a practical course of study designed to fit young men and young women for successful farm life, and it serves also as a preparatory course for the College of Agriculture. For young people who can not pursue the full college course the school supplies a training in the general branches supplementary to the grammar-school work, and a thorough course in the leading branches of agricultural knowledge put in practical form by means of the constant application of lectures in the field, laboratory work, and work shop.

## REQUIREMENTS FOR ADMISSION.

Applicants for admission will be examined in English grammar, arithmetic, United States history, and geography, unless they present credentials showing that they have completed the eighth-grade work in these subjects.

## EXPENSES.

The necessary expenses of students do not exceed \$90 per annum. This amount does not include the cost of the required military suit for boys, or traveling or personal expenses.



## MISSISSIPPI.

**Mississippi Agricultural and Mechanical College, *Agricultural College.***

J. C. Hardy, M. A., *President.*

W. L. Hutchinson, *In charge of Short Course.*

### SHORT WINTER COURSE IN AGRICULTURE.

The short winter course begins with the opening of the college after the Christmas holidays and continues ten weeks.

The entire time of the student is given to agriculture and subjects related to it, as follows: Agriculture, including tillage, crops, drainage, buildings, roads, terraces, dairying, and poultry husbandry; horticulture, including orchard and greenhouse work, as well as instruction regarding cold frames, hotbeds, and the home garden; agricultural chemistry; botany; entomology; veterinary science, and bookkeeping.

### REQUIREMENTS FOR ADMISSION.

No examination is required for admission to this course.

### EXPENSES.

Resident students will not be required to pay tuition or surgeon's fee, but nonresident students will pay a tuition fee of \$6. Dormitory and mess-hall privileges, if available, will be given short-course students; otherwise they can procure board in Starkville for \$12.50 to \$15 per month. Text-books, notebooks, etc., will cost about \$7, while washing and other incidentals will run the total expense up to \$45 or \$50 for the ten weeks.

## MISSOURI.

**College of Agriculture and Mechanic Arts of the University of Missouri, *Columbia.***

R. H. Jesse, LL. D., *President of the University.*

F. B. Mumford, M. S., *Acting Dean of the College of Agriculture.*

The College of Agriculture of the University of Missouri offers three winter courses, opening January 5, 1904, and continuing eight weeks.

### COURSE IN AGRONOMY.

This course includes instruction in the following subjects: (1) Farm equipment, including buildings, machinery, principles of construction, and material used; (2) soils, their origin, formation, distribution, chemical and physical properties, etc.; (3) fertilizers and manures; (4) farm crops, including conditions of germination and plant growth, special requirements for different crops, and rotation, cultivation, harvesting, and storing of crops; (5) horticulture—instruction regard-

ing large and small fruits, soils, planting, tillage, pruning, fungus diseases, picking, packing, storing, and marketing; also instruction in vegetable growing and the planting of home grounds; (6) botany; (7) economic entomology; (8) agricultural chemistry, and (9) carpentry and blacksmithing, with special reference to the needs of the agricultural student.

#### COURSE IN ANIMAL HUSBANDRY.

The animal husbandry course includes instruction in (1) stock feeding, with practice in computing and compounding rations; (2) forage crops, their production and utilization; (3) stock breeding; (4) breeds of live stock, a study of the history and development of the leading breeds of cattle, horses, sheep, and swine; (5) stock judging, with practical work at the barns in judging cattle, horses, sheep, and swine with score card; (6) veterinary science, with special reference to the prevention of diseases of animals that result from improper feeding and handling and from lack of proper sanitary conditions; (7) veterinary clinics—Saturday afternoon surgical operations and treatment of diseased animals before the class, and (8) carpentry and blacksmithing.

#### COURSE IN DAIRYING.

This course includes lectures in the forenoon and work in the dairy laboratory in the afternoon. The lectures are on such subjects as butter making, milk testing, dairy bacteriology, dairy machinery, feeding dairy cattle, dairy breeds, selecting dairy cows, and farm dairying. The laboratory work includes all the necessary exercises in a factory, such as weighing and sampling cream and milk, pasteurizing cream, ripening cream with and without starters, and churning, working, packing, and printing butter for market.

#### REQUIREMENTS FOR ADMISSION.

No examinations are required for entrance to these courses. Any person over 16 years of age may enroll and enjoy the full privileges of the instruction.

#### EXPENSES.

No charge is made for tuition. The only charges are an incidental fee of \$5, and a small laboratory deposit to cover cost of material and breakage in the laboratory. Board and lodging can be secured in Columbia at from \$3.50 to \$4 a week. The entire expense for the course, excluding cost of travel, need not exceed \$50.

#### SUMMER SCHOOL FOR TEACHERS.

The University of Missouri maintains annually a summer session of thirteen weeks, opening the first Monday in June.

Many different courses of study are offered in this session, and among them is one course in agriculture for teachers, with special reference to nature study and agriculture in the public schools.

#### REQUIREMENTS FOR ADMISSION.

Students are admitted without examination to such courses as they are prepared for.

#### EXPENSES.

The fee for admission is \$5 for the session or any part of it. Each student who takes laboratory work in agriculture or other courses is required to make a deposit of \$5 to cover laboratory fee of \$2.50 and damage or loss to university property. Good board, including room and service, may be had in private families at from \$3 to \$4.50 per week.

#### MONTANA.

**Montana State College of Agriculture and Mechanic Arts, Bozeman.**

James Reid, B. A., *President*.

#### WINTER AGRICULTURAL COURSE.

This course consists of two winter terms, the first opening November 10, 1903, and closing March 25, 1904, and the second extending over a like period in the winter of 1904-5.

The subjects of instruction for the first year are arithmetic, soils and crops, zoology, English composition, mechanical drawing, forge work, agricultural laboratory work, botany, animal types, carpentry, and stock judging; those for the second year are algebra, geometry, agricultural chemistry, irrigation, spelling and composition, agricultural machinery, repair and operation of machinery, veterinary work, horticulture, business forms and customs, stock feeding, dairying, and agriculture, the latter subject including soils and crops, judging and management of live stock, feeding live stock, and the principles of heredity.

#### REQUIREMENTS FOR ADMISSION.

The winter course is open to any young man.

#### EXPENSES.

An admission fee of \$4 is required. Board and room may be had in private families for \$15 per month and upward.

#### SHORT COURSE IN DOMESTIC SCIENCE.

The domestic-science short course extends over one college year. The instruction includes lectures on household economy, practice

work in cooking and sewing, and instruction in sanitation, home economies, and art, with electives in language, science, or music.

#### REQUIREMENTS FOR ADMISSION.

The requirements for admission are the same as those for students entering the preparatory course.

#### EXPENSES.

The fee for this course is \$12. Board and room may be had in private families for \$15 per month and upward.

### NEBRASKA.

**The School of Agriculture of the University of Nebraska, Lincoln.**

E. Benjamin Andrews, LL. D., *Chancellor.*

Charles E. Bessey, LL. D., *Dean of the Industrial College.*

Edgar A. Burnett, B. S., *Associate Dean of the Industrial College, in Charge of Agricultural Instruction.*

#### WINTER COURSE IN AGRICULTURE.

This course opens January 4, 1904, and continues nine weeks.

The work includes both lectures and practical work on the following subjects: Soils, field crops and farm management, butter and cheese making, breeds and breeding live stock, feeding live stock, diseases of live stock, orcharding and gardening, English, and shopwork.

#### SPECIAL COURSE IN DAIRYING.

The dairy course opens January 4, 1904, and continues nine weeks.

Two-thirds of the time is given to class work and one-third to practice work. The subjects of instruction are dairying, dairy stock judging, breeds and judging, veterinary practice, dairy accounts, and feeds and feeding.

#### REQUIREMENTS FOR ADMISSION.

No examinations for entrance are required, but applicants are expected to have a good knowledge of the primary branches as taught in the district schools, and must be at least 16 years of age.

#### EXPENSES.

The registration fee for either of the above courses is \$1. There is also a special laboratory fee of \$4 for the course in dairying. Board and room may be procured in the city at from \$3.25 to \$5 per week.

#### SPECIAL COURSE IN JUDGING.

The special course in judging begins January 22, 1904, and closes January 29, 1904. It gives an opportunity to persons who are

engaged in the active business of farming to have a week's practice in the judging of live stock and grain.

#### SUMMER SESSION.

The summer session of the university covers six weeks of the summer vacation. It is primarily for teachers, principals, and superintendents in Nebraska. Courses of study are offered in all the principal departments of the university. One of these courses is agriculture and nature study for teachers.

#### REQUIREMENTS FOR ADMISSION.

Any teacher and any other person of like qualifications may be admitted to the summer session.

#### EXPENSES.

The registration fee is \$6. Board and room cost from \$3.25 to \$5 per week.

#### SECONDARY AGRICULTURAL COURSE.

This course extends over three years of twenty-four weeks each, and is designed to train young men and young women for greater usefulness and efficiency on the farm. It also furnishes a partial preparation for those who desire to enter the technical agricultural group in the university. All such students, however, are required to take a year of preparatory work in addition to that offered in this course.

#### REQUIREMENTS FOR ADMISSION.

The school is open to young men and young women 16 years of age or over, not otherwise registered in the university, who pass successfully an examination or present to the registrar proper credits in the following subjects: Arithmetic, grammar, geography, United States history, physiology, reading, spelling, and writing.

#### EXPENSES.

Tuition is free to residents of the State. The matriculation fee is \$5, payable to the secretary of the university at the beginning of the first year only. An incidental fee of \$4 each year is required of all students in the above course, payable at the beginning of the year. A fee of \$6 each year is required of each student in chemistry, to cover cost of material used. A fee of \$2 each year is required to cover the cost of material used in the shops. Board and room can be had for about \$2.75 a week.



## NEVADA.

College of Agriculture of the Nevada State University, Reno.

Joseph E. Stubbs, M. A., D. D., *President*.

WINTER COURSES IN AGRICULTURE, DAIRYING, BOTANY, ENTOMOLOGY,  
BACTERIOLOGY, AND DOMESTIC SCIENCE.

The College of Agriculture of the Nevada State University will offer short courses in agriculture, in dairying, in botany, in entomology, in bacteriology, and in domestic science, beginning January 10, 1904, and ending March 10, 1904.

These courses are intended to be very practical, and require no examinations and no fees.

## NEW HAMPSHIRE.

New Hampshire College of Agriculture and the Mechanic Arts, Durham.

William D. Gibbs, M. S., *President*.

## TEN-WEEK COURSE IN AGRICULTURE.

The college offers a winter course in agriculture beginning January 5, 1904, and continuing ten weeks.

The studies offered are dairying, stock feeding, winter gardening, woodwork, forestry, and entomology, with practice in the creamery, barn, greenhouse, or wood shop.

## TEN-WEEK COURSE IN DAIRYING.

The course in dairying begins January 5, 1904, and continues ten weeks.

This course is designed especially for those who are desirous of mastering the art of butter making, or who wish to become fitted for the position of manager or superintendent of a creamery. The subjects taught are butter making, milk testing, pasteurizing milk and cream, dairy bacteriology, dairy farming, dairy chemistry, and care of steam engines and boilers.

## REQUIREMENTS FOR ADMISSION.

No entrance examination is required, but students taking the courses should possess a common-school education.

## EXPENSES.

The expense of the courses is estimated as follows:

Room and board (ten weeks, at \$4 per week) .....	\$40
Fee.....	5
Books .....	3
Total .....	48

## TWO-YEAR AGRICULTURAL COURSE.

The New Hampshire College of Agriculture and the Mechanic Arts also offers a two-year course devoted to the study of practical and theoretical agriculture and the natural sciences which are closely related to successful farming. At least ten hours each week are spent in practical exercises, which, so far as possible, are educational in their nature. This work is done on the farm or in the garden, barn, greenhouse, or shops. In addition to the agricultural subjects there is instruction in mathematics, English, drawing, the natural sciences, and military tactics.

## REQUIREMENTS FOR ADMISSION.

The course is open to "students who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, and the geography and history of the United States."

## EXPENSES.

The total necessary expenses of the student, including tuition, textbooks, fees, room rent, and board, are estimated at from \$148 to \$257 per year.

## NEW MEXICO.

**New Mexico College of Agriculture and Mechanic Arts, Mesilla Park.**

Luther Foster, M. S. A., *President*.

## TWELVE-WEEK COURSE IN AGRICULTURE AND HORTICULTURE.

This course is given during each term of the college year, the first term opening September 9, 1903, the second term November 30, 1903, and the third term March 8, 1904.

The instruction in the first term includes lectures on live stock and pomology, fifteen hours per week of practical work in orchard and flower garden, and instruction in English, arithmetic, or other subjects. The second term's work includes lectures in pomology and economic entomology, practical work in greenhouse, hotbeds, and cold frames, fifteen hours per week, and instruction in English, arithmetic, or other studies. The third term's work includes lectures in soils, crops, and vegetable growing, practical work in garden and field, fifteen hours per week, and instruction in English, arithmetic, or other studies.

## REQUIREMENTS FOR ADMISSION.

Students entering this course must be at least 16 years of age. No entrance examinations are required.

## EXPENSES.

Citizens of New Mexico are required to pay an annual fee of \$5; nonresidents, a term fee of \$5. Students who are not citizens of the

United States are charged a tuition fee of \$17 per term, or \$50 per year. There is also a fee of \$2.50 for the loan of books, and laboratory fees depending upon the work taken. Board and lodging cost \$15 to \$20 per month, and laundry about \$1 per month.

#### TWO-YEAR AGRICULTURAL COURSE.

The New Mexico College of Agriculture and Mechanic Arts also maintains a two-year agricultural course, designed to prepare young men to become practical farmers and ranchmen, and to be able to fill positions as superintendents of ranches and large estates. The course includes much of the work in agriculture of the regular four-year agricultural course, besides requiring a number of other studies which have been selected as especially valuable for the student.

#### NEW YORK.

##### Cornell University, Ithaca.

Jacob Gould Schurman, M. A., D. Sc., LL. D., *President*.

Liberty Hyde Bailey, M. S., *Director of the College of Agriculture, Dean of the Faculty, and Professor of Rural Economy.*

#### AGRICULTURAL WINTER COURSE.

This course opens January 4, 1904, and continues eleven weeks.

The required work in the course includes instruction in fertility of the land, agronomy, animal husbandry, and horticulture. In addition to this the student must elect at least fifteen hours per week from the following subjects: Botany in relation to agriculture, economic entomology, poultry keeping, advanced poultry keeping, diseases of farm animals, and the farm laboratory.

#### REQUIREMENTS FOR ADMISSION.

Students are admitted to this course without examination after satisfying the director that their previous training in arithmetic, English, and geography has been such as to enable them to pursue the subjects with satisfaction to themselves and credit to the college. It is open to both men and women of 17 years and upward.

#### EXPENSES.

Tuition is free to all residents of New York State, but \$30 tuition is required of nonresidents. There is a laboratory fee of \$5, and those who elect practice in dairying pay an additional laboratory fee of \$12.50. The cost of living in Ithaca, including board, room, fuel, and lights, varies from \$4 to \$10 per week.

#### THE DAIRY COURSE.

The dairy course opens January 4, and continues eleven weeks.

The instruction is partly by lectures and recitations, but largely by



actual practice in the creamery, cheese factory, and dairy laboratory, the order being about as follows: Lectures on milk and its products, two hours per week; lectures on subjects related to dairying, ten hours per week; cheese room practice, two periods per week of four to six hours each; dairy laboratory practice, two periods per week of two to four hours each, and problems and bookkeeping, two hours per week.

#### REQUIREMENTS FOR ADMISSION.

The requirements for admission are the same as in the agricultural course.

#### EXPENSES.

Tuition is free to all residents of New York State, but \$30 tuition is required of nonresidents. The laboratory fee for the dairy course is \$15. Board, room, fuel, and lights can be procured in Ithaca at from \$4 to \$10 per week.

#### SPECIAL TWO-YEAR COURSES.

*Agricultural special.*—This course is designed for those who desire some training in agricultural subjects, but can not take a full four-year course. On the completion of this course a certificate is given to those who desire it. Students are admitted to classes upon the recommendation of the director without examination. They must be at least 18 years of age. The student elects such regular subjects as may be arranged with the various professors. At least two-thirds of all the work must be chosen from the agricultural electives.

*Nature study special.*—This course is now open for teachers who desire to prepare themselves in nature study and country-life subjects. It is open to all actual teachers, and to such students in any college or department of the university as signify their intention to teach in the schools. Admission to the course is made upon the recommendation of the director of the college of agriculture. The course comprises subject-matter studies selected from the regular classes of the university, and pedagogical practice to be had with children in the regular nature-study classes and clubs in the schools of Ithaca, and in school-garden work with children.

#### NORTH CAROLINA.

The North Carolina College of Agriculture and Mechanic Arts, *West Raleigh.*

G. T. Winston, M. A., LL. D., *President.*

Charles W. Burkett, M. S., Ph. D., *Dean of Industrial Department.*

#### WINTER COURSE IN AGRICULTURE AND DAIRYING.

This course opens January 5, 1904, and continues ten weeks.

The studies offered are butter making, milk and butter production, feeds and feeding, stock raising, dairy farming, diseases of live stock,

soil study, farm crops, soils and fertilizers, farm chemistry, plants, entomology, bookkeeping, and farm economics. The class-room work is supplemented by practice in the creamery, barn, and workshop.

#### REQUIREMENTS FOR ADMISSION.

No entrance examination is required, but students must be at least 18 years of age and should have a common-school education.

#### EXPENSES.

The only fee is a laboratory fee of \$5. Books and note paper will cost from \$2 to \$3, and two white duck suits to wear in the dairy laboratory will cost \$1 each. Board and room may be secured for \$2.50 per week.

#### TWO-YEAR AGRICULTURAL COURSE.

This course is designed to meet the needs of those who are unable to take the longer course. It is especially devoted to the practical study of agriculture and horticulture and their various branches and the natural sciences which are closely related to farming. All of the subjects of the first year are required, and include botany, horticulture, pomology, dairying, agricultural chemistry, arithmetic, algebra, English, and military drill. In the second year 25 electives are offered, from which the student chooses subjects that will aggregate 17 hours per week.

#### REQUIREMENTS FOR ADMISSION.

An examination is required in arithmetic, English grammar and composition, and American history. Applicants over 20 years of age may be admitted without examination.

#### EXPENSES.

The cost of the course is about \$160 per year.

#### COURSES FOR RURAL TEACHERS.

One-year and two-year normal courses for rural teachers are offered. These include considerable instruction in nature study and agriculture, intended to prepare teachers for giving instruction in these subjects in the rural schools. There are similar courses for city teachers, but with less instruction in agricultural subjects.

#### SUMMER SCHOOL FOR TEACHERS.

The summer school for teachers is held annually during the month of July. It is open to both men and women, and the instruction includes, in addition to the usual normal and literary subjects, agriculture, road building, manual training, and nature study.

**The Agricultural and Mechanical College for the Colored Race, Greensboro.**

James B. Dudley, M. A., *President*.

John H. Bluford, B. S., *Professor of Agriculture and Chemistry*.

**SHORT COURSE IN DAIRYING.**

A six-week dairy course opens January 3, 1904.

Instruction will be given daily, except Sundays, in the following subjects: Stock feeding, animal husbandry, dairy management, and commercial fertilizers. The class-room instruction will be supplemented by practical work with animals and the handling of milk and making of butter.

**REQUIREMENTS FOR ADMISSION.**

No examination will be required, but it is highly essential that applicants for admission be able to read and write.

**EXPENSES.**

It is estimated that the total cost of the course, including board, lodging, heat, and light, need not exceed \$12.

**NORTH DAKOTA.**

**North Dakota Agricultural College, Agricultural College.**

J. H. Worst, LL. D., *President*.

**AGRICULTURAL SHORT WINTER COURSES.**

These courses open January 4, 1904, and continue daily, except Sundays, for ten weeks.

Three schedules are arranged, thus giving the student the chance to elect a group of studies best suited to his needs. It is recommended that students complete at least two of the schedules, taking one of them one winter and another the next.

*Schedule A.*—The subjects and total number of hours in schedule A are as follows: Veterinary science, 50; breeds and breeding, 30; dairying, 20; seed testing, practice in tree planting, etc., 50; feeds and feeding, 30; farm accounts, 10; tree planting, 10; English and arithmetic, 50; judging live stock, 30; dairy practice, 20; and veterinary clinics, 10.

*Schedule B.*—The subjects and total number of hours in schedule B are as follows: Farm mechanics, 50; steam engineering, 50; grains, grasses, and crop rotation, 25; fruit and vegetable culture, 13; plant diseases and injurious insects, 12; soil physics, 50; English or arithmetic, 50; engineering practice, 10; and shopwork, 40.

*Schedule C.*—The subjects and total number of hours in schedule C are as follows: Shopwork, 100; chemistry of the farm, 50; grasses,

grains, and crop rotation, 25; fruit and vegetable culture, 13; plant diseases and injurious insects, 12; chemistry of soils, waters, and foods, 50; and farm mechanics, 50.

#### EXPENSES.

The estimated total expenses of a term are as follows:

Board, 12 weeks, at \$3.50.....	\$42
Books .....	4
Notebooks, stationery, incidentals, etc .....	4
Total .....	50

#### THREE-YEAR AGRICULTURAL COURSE.

This is a three-year course arranged to accommodate young men who can not pursue a four-year course and are unable to leave home during the summer months. It is largely practical, and is held during twenty-two weeks of the fall and winter of each year.

#### TEN-DAY STOCK AND GRAIN-JUDGING COURSE.

A ten-day course has been arranged especially for the older active stockmen and farmers who can not spare the time to take a course of ten weeks, but who wish to become more proficient judges of live stock, grain, etc. The course extends over the ten days from December 8, 1903, to December 18, 1903. Three days are devoted to judging horses, three days to judging cattle, two days to judging sheep, and two days to judging swine. During at least one hour each day the students will be given practice in judging corn and other grain, and in detecting and identifying weed seed.

#### OHIO.

**The College of Agriculture and Domestic Science of the Ohio State University, Columbus.**

W. O. Thompson, D. D., *President of the University.*

Homer C. Price, M. S. A., *Dean and Professor of Rural Economics.*

#### COURSE IN DAIRYING.

The course in dairying begins annually the first Tuesday in January and continues twelve weeks.

It is designed especially for those who are desirous of mastering the art of butter and cheese making, or who wish to become fitted for the position of manager or superintendent of a creamery or cheese factory. The greater part of the time is given to the laboratory or dairy-room practice. This consists in the testing of milk as to purity and content of butter fat; the use and care of centrifugal separators and other dairy devices; the making of butter and cheese by the most improved methods; in short, all the essential operations of

creamery, factory, and home dairy management are repeatedly performed under the guidance and direction of competent instructors. The laboratory or dairy-room practice is supplemented, however, by lectures and recitations upon the subjects of breeding, feeding, selecting and judging of dairy stock; the diseases of the cow; the chemistry of milk; the effect of bacteria and other agents upon milk and its products; the care of boilers and engines, and similar subjects.

#### REQUIREMENTS FOR ADMISSION.

Applicants over 21 years of age are admitted without examination. All others must pass an examination in arithmetic, geography, grammar, and United States history, or bring high school or other certificates for those branches.

#### EXPENSES.

Each student is required to pay an incidental fee of \$6 per term. Students may secure unfurnished rooms in the south dormitory and board themselves at a total expense of about \$2 a week. In the north dormitory board, furnished rooms, fuel, light, and washing are supplied for about \$3.50 a week. Board with furnished rooms can be obtained in private families within convenient distance of the university at from \$3.50 to \$5 a week.

#### TWO-YEAR AGRICULTURAL AND DOMESTIC SCIENCE COURSES.

A two-year agricultural course is offered, the first year of which is made up largely of studies preparatory either to the second year of the short course or to the first year of the four-year course in agriculture, or in horticulture and forestry. The second year contains optional work, so it is possible for the students to specialize in agriculture, horticulture, or animal industry and dairying.

A two-year course in domestic science is planned for those who can give but a limited time to university training.

The requirements for admission to the two-year course in agriculture are the same as for the course in dairying. For the entrance to the two-year course in domestic science the following subjects are required: Arithmetic, scientific and physical geography. English grammar, United States history, English (composition and rhetoric and English classics), algebra, plane geometry, civil government, and general history.

#### OKLAHOMA.

**Oklahoma Agricultural and Mechanical College, Stillwater.**

Angelo C. Scott, M. A., LL. M., *President.*

John Fields, B. S., *Dean of Short Winter Courses, Stock Feeding.*

#### SHORT COURSE IN AGRICULTURE, HORTICULTURE, AND MECHANIC ARTS.

This course opens January 5, 1904, and continues eight weeks.

The subjects of instruction and the number of lectures in each sub-



ject are as follows: Principles of breeding, 4; study of breeds, 10; stock judging, 10, with practice on five afternoons; diseases of live stock, 18, with five afternoon exercises; stock feeding, 12; farm dairying, 9, with practice on five afternoons; crops for Oklahoma, 18; farm machinery and equipment, 12; steam engines and boilers, 8, with ten afternoon exercises in running and caring for engines and machinery; maintaining soil fertility, 9; orchard and small fruits, 18, with practical work in budding, grafting, and propagation on five afternoons; troublesome insects, 9; elementary botany, 9; farm water supply, 10; legislation and laws affecting farmers, 12; farm accounts, interest, 12; and blacksmithing, 15.

#### REQUIREMENT FOR ADMISSION.

The only requirement for admission is that the applicant be interested in farming.

#### EXPENSES.

The admission fee for residents of Oklahoma and Indian Territory is \$1; for all others, \$5. The total expense of attending the course need not exceed \$40.

#### SCHOOL OF AGRICULTURE AND DOMESTIC SCIENCE.

A high-school course in agriculture and domestic economy, open to students of both sexes and covering a period of two years, has recently been organized. Students who are reasonably proficient in the common-school branches, and those of mature years, may be able to take the agricultural and domestic economy work of both years in one, if they desire, and be excused from the other work of the course.

#### OREGON.

**Oregon State Agricultural College, Corvallis.**

Thomas M. Gatch, M. A., Ph. D., *President*.

#### SPECIAL DAIRY COURSE.

The eight-week dairy course opens January 7, 1904.

Students will meet for work six days per week. The forenoon of each day will be devoted to practical work in the dairy rooms; the afternoons to lectures, recitations, and cheese making. The lecture work comprises instruction in the following subjects: Soil chemistry and physics; feeds and feeding; milk and its products; dairy bacteriology; breeds and breeding, with practice in stock judging; chemistry of dairy products; veterinary science, and steam engine. There will be practical work in testing and handling milk and cream, in butter making, and in cheese making.



The dairy course is open to all persons of good moral character, both male and female, who are at least 18 years of age, and have a good common-school education. No entrance examinations are required.

## EXPENSES.

There are no fees, except a breakage deposit of \$2.50, a portion of which is usually returned at the close of the term. Board and lodging are obtainable in Corvallis at from \$3 to \$4 per week. Students are required to wear white suits while at work in the dairy, which cost \$1 to \$1.50 per suit. The cost of books will not exceed \$2. For further information in relation to this course, address F. L. Kent, Corvallis, Oreg.

## SHORT COURSE IN AGRICULTURE.

The ten-day course in agriculture opens January 5, 1904.

The course consists of a series of popular lectures intended to aid horticulturists, dairymen, and others engaged in agricultural pursuits in developing the great natural resources of the State. The lectures are supplemented by laboratory work and library reading. There is no educational test and no expense except for board.

## PENNSYLVANIA.

*The Pennsylvania State College, State College.*

George W. Atherton, LL. D., *President.*

W. A. Buckhout, M. S., *Acting Dean of the School of Agriculture.*

George C. Watson, B. Agr., M. S., *Professor of Agriculture, in Charge of Short Courses.*

## SHORT WINTER COURSE IN AGRICULTURE.

This course opens January 6, 1904, and continues twelve weeks.

Instruction is divided into class-room and practicum work. The latter is given in laboratories, shops, forcing houses, creamery, and barns, and supplements the instruction given in the class room. The subjects of instruction and number of hours are as follows: Agriculture, 55, with 22 hours of practice; agricultural chemistry, 55, with 44 hours of practice; animal industry, 55, with 22 hours of practice; botany, 20; carpentry, 22 hours of practice; dairy husbandry, 15, with 22 hours of practice; entomology, 15; forging, 22 hours of practice; general horticulture, 20; poultry, 22, with 11 hours of practice; principles of stock feeding, 15, and veterinary science. From this list of studies the student may select such as he requires.

## SPECIAL AGRICULTURAL COURSE.

This course is offered each year, and continues throughout the college year.

The special course is intended for young men who wish to devote more time to the study of agriculture than is given in the short course. The studies are elected from the list of studies regularly offered in the collegiate course.

## CREAMERY COURSE.

The creamery course opens January 6, 1904, and continues eight weeks.

Students are required to attend lectures, recitations, and practicums on the following subjects: Butter making, creamery bookkeeping, dairy arithmetic, dairy bacteriology, dairy cattle (their care and feeding), pasteurizing, dairy chemistry, dairy machinery, dried curd and cottage cheese, ice-cream making, milk, and milk testing.

## REQUIREMENTS FOR ADMISSION.

For admission to the short and special courses no examination is required, except in the case of students in the special course who desire to take other than technical agricultural studies. Candidates for the short courses must be at least 16 years of age, and those for the special course at least 18.

## EXPENSES.

No charge whatever is made for tuition in any of the agricultural courses. Students in the short courses pay an incidental fee of \$6. If laboratory work is elected, additional fees are required. Students in the special course pay the same fees per term as those in the collegiate course. Board and lodging may be obtained in private families at a cost not to exceed \$4.50 per week.

## CORRESPONDENCE COURSES.

The Pennsylvania State College offers correspondence courses in crop production, animal production, horticulture and floriculture, dairying, and domestic science. Tuition is free in all of these courses.

## RHODE ISLAND.

**Rhode Island College of Agriculture and Mechanic Arts, Kingston.**

Kenyon L. Butterfield, M. S., *President*.

## SPECIAL COURSE IN FARM PRACTICE.

This course opens January 9, 1904, and continues six weeks.

The subjects of instruction are soils and fertilizers, soil management,

farm crops, live stock, fruit growing, vegetable growing, drainage, plant life, insect life, mechanics, woodwork, ironwork, and farm management. Special lectures are given by men of note outside of the college faculty, and excursions are made to farms and gardens in the vicinity.

#### SPECIAL COURSE IN POULTRY KEEPING.

The poultry course opens January 6, 1904, and continues six weeks.

Both lectures and practice work are given. The subjects of instruction comprise the following: Zoology, including anatomy, physiology, and embryology; breeds of fowls and their origin; principles of breeding, mating, care, and management; incubation and care; chemistry of foods; feeding; egg and flesh production; eaponizing; fattening; killing, dressing, and marketing; the prevention of diseases; crops raised for poultry, and poultry plants, including location, drainage, building, drawing of plans, etc.

#### SPECIAL COURSE IN FARM MECHANICS.

This course begins January 5, 1904, and continues twelve weeks.

The instruction consists largely of practice work, but also includes lectures on the construction of buildings. The practice work consists of woodwork, drawing, forge work, piping, and steam heating.

#### REQUIREMENTS FOR ADMISSION.

No examinations will be required of students in any of the short courses. Candidates must be at least 15 years of age, and furnish certificates of good character.

#### EXPENSES.

For residents of Rhode Island no tuition fee is charged; nonresidents will pay \$5 tuition in the farm-practice course, or \$10 for either of the other courses. All students pay a matriculation fee of \$2. The estimated total expenses for the farm-practice course are \$35 to \$60; for the poultry course, \$40 to \$80; for the course in farm mechanics, \$75 to \$90.

#### AGRICULTURAL HIGH SCHOOL.

A high school course covering two years is provided. The subjects of instruction are algebra, English, geometry, general history, business arithmetic, and farm bookkeeping; plant life, the soil and the plant, vegetable gardening, farm crops, animals and their management, farm mechanics, dairying, social problems of the farmer, fruit growing, poultry culture, and military drill, with electives in carpentering, forging, free-hand drawing, mechanical drawing, and stenography.

## REQUIREMENTS FOR ADMISSION.

Candidates for admission must be not less than 15 years of age, and must be able to pass written examinations in arithmetic, geography, English grammar, and United States history.

## SOUTH DAKOTA.

**South Dakota Agricultural College, Brookings.**

James Chalmers, M. A., *President*.

## SPECIAL COURSE IN AGRICULTURE.

This course opens January 4, 1904, and continues six weeks.

The work consists of lectures, recitations, demonstrations, and practical laboratory exercises on the following subjects: Stock judging, farm methods and implements, crop rotation, corn judging, seed selection and breeding, diseases of domestic animals and their treatment, insects injurious to farm crops, and the elements of horticulture.

## SPECIAL COURSE IN BUTTER MAKING.

This course opens January 4, 1904, and continues twelve weeks.

The work embraces the care of dairy cows, stables, milk, and dairy utensils; the ripening of cream; pasteurization and sterilization of milk; also instruction in general agriculture, dairy arithmetic and engineering, botany, entomology, horticulture, zoology, bookkeeping, and bacteriology.

## COURSE IN DOMESTIC DAIRYING.

A course in domestic dairying begins in September (September 23, 1903), and continues twelve weeks.

The course is offered to the class in domestic science and to special students who desire to become proficient in the art of home dairying. The following work in the various courses is offered: Care and management of dairy cows, testing dairy products, practical laboratory work in butter and cheese making as applied to home and farm dairying, care and management of hand separators and other modern dairy apparatus, and dairy bacteriology.

## SPECIAL COURSE IN CHEESE MAKING.

This course opens March 28, 1904, and continues until the close of the year, June 16.

The following work is offered: Dairy lectures, dairy arithmetic, dairy engineering, bookkeeping; practical cheese making, and dairy bacteriology. The practical cheese making embraces the manufacture of Edam, Gouda, brick, and other styles of fancy cheese, and the regular American Cheddar, factory, and flats.

## SHORT COURSE IN HORTICULTURE.

This course opens January 4, 1904, and continues twelve weeks.

This is a special commercial nursery course, and includes lectures and practical work in commercial propagation and nursery management of fruit trees and small fruits, forest trees, ornamental trees, shrubs, and plants, as well as instruction in grafting, budding, pruning, cutting scions, packing grafts, making cuttings, and stratifying seeds.

## SHORT COURSE IN DOMESTIC SCIENCE.

Young ladies who are not able to take an extended course in the college are allowed to elect special work for one term in the following subjects: Household art, floriculture and home gardening, domestic dairying, cooking, sewing, science lectures, and music and free-hand drawing as desired.

## REQUIREMENTS FOR ADMISSION.

Students in the special courses and short courses are admitted without examination.

## EXPENSES.

The registration fees for students taking work in the college are \$4 per term. A laboratory fee of \$1 per term is charged for the use of each laboratory in which the student takes work. Board and room may be obtained at reasonable rates at the college or in private families.

## TENNESSEE.

**State Agricultural and Mechanical College of the University of Tennessee,**  
*Knoxville.*

Charles W. Dabney, Ph. D., LL. D., *President.*

Andrew M. Soule, B. S. A., *Professor of Agriculture and Chairman of the Department of Agriculture.*

## TEN-WEEK WINTER AGRICULTURAL COURSE.

This course opens January 4, 1904, and continues ten weeks.

It is intended that the instruction shall cover two winter terms. The subjects of instruction for the first year, with the number of hours for each subject, are as follows: Agriculture, 20; animal husbandry, 40; stock judging, 90; dairying, 150; horticulture, 60; veterinary science, 60; agricultural chemistry, 20; and mechanic arts, 40. For the second year the subjects and hours are: Agriculture, 70; dairying, 150; feeds and feeding, 90; horticulture, 60; agricultural chemistry, 20; botany, 20; cereal judging, 90; veterinary science, 60; mechanic arts, 40; and bookkeeping, 20. Where topics appear in the first year's work the second year's work in the same line will be more advanced.



## REQUIREMENTS FOR ADMISSION.

Any one 16 years of age or over who has a fair common-school education will be admitted to these courses without examination.

## EXPENSES.

Tuition is free, and the only charge made by the university is an incidental and breakage fee of \$7. Board in private houses in Knoxville costs from \$2.50 to \$3.50 per week.

## SPECIAL COURSES.

Special courses, covering one or two weeks, are offered as follows: Cereal judging and practical stock feeding, January 18-30; stock judging and dairying, February 1-13; and farm poultry, February 15-20. The entrance fee to these courses will be \$2.

## SUMMER SCHOOL OF THE SOUTH.

The University of Tennessee, cooperating with the General Education Board, offers annually summer school work for teachers, extending over six weeks, from about the middle of June to the end of July. Instruction is given in a large number of subjects, among which are nature study, school gardening, and elementary agriculture, the object being to prepare teachers to teach these subjects in public schools.

## EXPENSES.

The registration fee is \$5. There is no charge for tuition except when work is done amounting to more than four recitations a day in addition to general lectures. For each additional class \$2 is charged. Rooms and board can be had on the university grounds for \$30 for the whole term, or \$6 a week. In private boarding houses board and lodging are offered at \$4 to \$6 a week.

## TEXAS.

*Agricultural and Mechanical College of Texas, College Station.*

David F. Houston, *President*.

The department of agriculture of this college offers three special short courses, beginning January 4, and continuing ten weeks.

## STOCK-FARMING COURSE.

This course affords scientific and practical work in stock breeding, stock feeding, the cultivation of crops, veterinary medicine, farm dairying, and horticulture.

## DAIRY COURSE.

The work of this course consists of class-room instruction in the theory of handling milk, separating cream, and making butter, com-

bined with practice work with separators, churns, milk testers, and other dairy equipment. Attention will also be given to the proper selection, care, feeding, and management of the dairy herd, and to the judging of dairy animals. Instruction will be given in veterinary medicine.

#### HORTICULTURAL COURSE.

The special object of this course is to fit men for practical work in the orchard, nursery, and garden. Thorough instruction is given in the construction and management of hotbeds and cold frames, together with the forcing of early vegetables, pruning, budding, grafting, and the cultivation and management of orchards.

#### REQUIREMENTS FOR ADMISSION.

All of these courses are open to young men 18 years of age or over. No entrance examinations are required.

#### UTAH.

##### **Agricultural College of Utah, Logan.**

W. J. Kerr, D. Sc., *President*.

The Agricultural College of Utah offers three winter courses, beginning January 5, 1904: An agricultural course continuing four weeks and domestic arts and mechanic arts courses continuing twelve weeks.

#### WINTER COURSES IN AGRICULTURE.

The subjects of instruction and the number of hours per week for each are as follows: Agronomy, 5; stock judging and management, 3; stock feeding, 3; dairy lectures, 2; agricultural bacteriology, 2; dairy practice, 4; agricultural chemistry, 2; horticulture, 3; entomology, 2; veterinary science, 3; farm accounts, 3; irrigation, 2; and poultry keeping, 2. These courses are elective, the student choosing such as will best meet his requirements. He may also elect such regular college-course studies as he is prepared to pursue advantageously.

#### REQUIREMENTS FOR ADMISSION.

Students are admitted to the winter courses without examination.

#### EXPENSES.

Tuition is free. The annual entrance fee is \$5. The fees for the use of the laboratories range from \$2 to \$5 per year. Good board and rooms can be obtained in private houses for from \$3 to \$3.50 per week.

#### A THREE-YEAR AGRICULTURAL COURSE.

The Agricultural College of Utah also offers a three-year agricultural course, the graduates of which receive certificates of graduation.

## VERMONT.

University of Vermont and State Agricultural College, *Burlington.*

M. H. Buckham, D. D., LL. D., *President.*

J. H. Hills, B. S., *Professor of Agricultural Chemistry and Dean of the Department of Agriculture.*

## SHORT COURSE IN AGRICULTURE.

Students who do not wish to take the full four-year course may take a special course of one year or two years, selecting such studies as they are fitted to pursue. Such students may receive certificates of proficiency, but are not candidates for a degree.

## VIRGINIA.

Virginia Agricultural and Mechanical College and Polytechnic Institute, *Blacksburg.*

J. M. McBride, Ph. D., LL. D., *President.*

## TWO-YEAR AGRICULTURAL COURSE.

The Virginia Polytechnic Institute offers a course of practical agriculture covering two years. The work of the first year is the same as in the four-year agricultural course, except that history is taken instead of French or Spanish. The subjects of the second year are history of domestic animals, stock breeding, stock feeding, soils and soil physics, inorganic chemistry, forestry, history of agriculture, veterinary anatomy, geology, animal husbandry, clinics, and military science and tactics.

Hampton Normal and Agricultural Institute, *Hampton.*

H. B. Frissell, D. D., LL. D., *Principal.*

W. B. Evans, *Conductor of Summer Normal Institute.*

## SUMMER NORMAL INSTITUTE.

This institute is held annually and occupies six weeks of the summer vacation. Its purpose is to afford teachers, especially those of rural schools, an opportunity to obtain instruction in the common-school branches and in manual training, including domestic science, domestic art, upholstering, bench work, agriculture, and dairying. Nature study is given prominence in the course, and is supplemented by advanced work leading up to the practical principles of agriculture. The cost of board for the whole course is \$10. Correspondence concerning the summer institute should be addressed to Capt. Allan Washington, Hampton Institute, Hampton, Va.

## WASHINGTON.

Washington Agricultural College and School of Science, Pullman.

E. A. Bryan, M. A., *President*.

E. E. Elliott, *Professor of Agriculture*.

## SCHOOL OF DAIRYING.

This is a special course of eight weeks offered in winter or early spring. The date of opening has not yet been announced.

The following lectures are offered: Fifteen lectures on milk, butter, and cheese making, selection and management of dairy cows, etc.; 10 lectures on stable hygiene and common diseases of cows; 10 lectures on the care of machinery, speeding of pulleys, etc.; 4 lectures on bacteriology; and 15 lectures on the composition and adulteration of dairy products and fermentative changes in butter and cheese.

## REQUIREMENTS FOR ADMISSION.

In case the number of applicants for admission exceeds the capacity of the school, preference will be given to those who have had the most experience in the dairy business.

## EXPENSES.

The cost of board in the dormitories averages about \$2.75 a week.

## SHORT COURSE IN HORTICULTURE.

This is a four-week course, beginning January 4, 1904.

Two or three hours a day will be devoted to lectures, and from two to five hours a day to practical work in budding, grafting, pruning, spraying, etc. The lectures and number of hours are as follows: Origin and properties of the soil, 5; soil moisture and tillage, 8; plant growth and plant food, 6; farm and commercial fertilizers, 5; propagation of plants, 8; location of a fruit plantation, 5; planting of orchards, 10; care of orchards, 15; culture of small fruits, 8; vegetable gardening and the kitchen garden, 12; plant diseases, injurious insects, and spraying, 5, and the farm home and the harmonious use of ornamental trees, flowers, and shrubs, 6.

## REQUIREMENTS FOR ADMISSION.

The course is open without examination to anyone having a common-school education.

## EXPENSES.

The necessary expenses of the course are not over \$30.

## AGRICULTURAL HIGH SCHOOL.

A three-year high-school course is offered to meet the needs of students who can not remain to complete the entire course. It aims to

teach farmers' sons and daughters the important facts concerning orcharding, grain raising, grass culture, gardening, stock raising, dairying, household economy, and other rural subjects. The course is coordinate with the regular preparatory school, and thus prepares the students for the freshman class in the college.

#### REQUIREMENTS FOR ADMISSION.

Applicants for admission to the school of agriculture must be at least 13 years of age, and must be able to pass a satisfactory examination in reading, arithmetic, geography, physiology, orthography, history of the United States, and English grammar.

#### WEST VIRGINIA.

**West Virginia University, Morgantown.**

D. B. Purinton, Ph. D., LL. D., *President*.

Thomas C. Atkeson, Ph. D., *Dean of the College of Agriculture*.

#### TWELVE-WEEK COURSE IN GENERAL AGRICULTURE.

This course opens January 5 and ends March 24.

The subjects discussed are (1) soils and farm crops—origin and cultivation of different soils, the culture of farm crops, and the treatment of pastures and meadows; (2) breeds and breeding; (3) feeds and feeding; and (4) fertilizers and manures.

#### TWELVE-WEEK COURSE IN HORTICULTURE.

The course in horticulture begins January 5 and ends March 24.

The subjects of instruction include (1) plant propagation by grafts, buds, cuttings, etc.; (2) fruit growing—soils, location, varieties, nursery stock, spraying, management, etc.; (3) vegetable gardening, including location, construction; and care of hotbeds; and (4) landscape gardening, with a special reference to the planting and care of home grounds.

#### TWELVE-WEEK COURSE IN DAIRYING.

The dairy course opens January 5 and closes March 24.

Instruction will be given both by lectures and demonstrations, and will include the use of the Babcock test; ripening of cream; separating, churning, salting, working, and packing of butter; the care of milk; the selection and care of dairy cows; feeds and feeding; and the construction and care of stables, etc.

#### TWELVE-WEEK COURSE IN POULTRY CULTURE.

This course opens January 5 and closes March 24.

Practice work will be given in the operation of different makes of incubators and brooders, feeding for egg production, fattening fowls



for market, caponizing, judging, and mating. The lectures will cover classification, characteristics, breeding, and management of domestic fowls, and the construction of poultry buildings.

#### SIX-WEEK COURSES.

Those who can not spare the time for twelve weeks in college may come at the same time for special lecture courses extending over periods of six weeks each. In these shorter courses the same subjects are offered as in the twelve-week courses, but students in the six-week courses will not join the regular classes. They will be given special lectures.

#### REQUIREMENTS FOR ADMISSION.

There are no requirements for admission.

#### EXPENSES.

There are no expenses except for books, room, and board, which should not be over \$30 for one of the six-week courses, or \$50 for one of the twelve-week courses.

#### ONE-YEAR AGRICULTURAL COURSE.

The West Virginia University also offers a course consisting of twelve subjects selected from the technical courses announced in the College of Agriculture. Students may complete this course in three winter terms of twelve weeks each.

#### WISCONSIN.

**College of Agriculture of the University of Wisconsin, Madison.**

Charles W. Van Hise, Ph. D., *President of the University.*

W. A. Henry, B. Agr., *Dean of the College of Agriculture, Professor of Agriculture.*

#### SHORT COURSE IN AGRICULTURE.

R. A. Moore, *In charge of Short Course.*

Two years are required to complete this course, which is given during the winter months of each year. This year the course opens November 28, 1903, and closes March 3, 1904.

The subjects of instruction open to students include breeding and judging live stock, plant life and horticulture, agricultural chemistry, veterinary science, feed and feeding, agricultural physics, practical mechanics, farm dairying, bacteriology, the economics of agriculture, farm bookkeeping and business accounts, and parliamentary practice and organization of farmers' clubs.

## REQUIREMENTS FOR ADMISSION.

Students should be at least 16 years of age and should have a common school education. No entrance examination is required. The course is open to students of both sexes.

## EXPENSES.

Residents of Wisconsin pay no tuition, but an incidental fee of \$5. Residents of other States will pay incidental, tuition, and laboratory fees, amounting to \$40 per term. Furnished rooms can be rented at from \$1 to \$1.25 per week, and table board in clubs ranges from \$2.75 to \$3 per week. The total expense for the first-year student need not exceed \$70. Second-year students will expend about \$20 more in visiting stock farms and attending the International Fat Stock Show.

## COURSE IN DAIRYING.

E. H. Farrington. *In charge of Dairy School.*

This course opened November 4, 1903, and continues twelve weeks.

The subjects of instruction are milk, its composition, methods of testing, conditions affecting creaming and churning, and principles involved in the manufacture of cheese, etc., 20 lectures; creamery management and dairy bookkeeping, theory and art of cheese making, dairy bacteriology, 16 lectures; care and management of boiler and engine, 15 lectures and demonstrations; feeds and feeding, 8 lectures; heating, ventilation, drainage, and other problems of dairy practice, 8 lectures; breeding and selection of dairy cows, 8 lectures; and parliamentary practice, 10 exercises. There is also daily practice work in the creamery and cheese room.

## REQUIREMENTS FOR ADMISSION.

Students of the dairy course should be at least 16 years of age, and should have a common school education. No entrance examination is required. Candidates are required to have at least six months' experience in a practical creamery or cheese factory before being admitted to this course.

## EXPENSES.

The fees for residents of Wisconsin amount to \$15; those for non-residents, \$50. An additional fee is charged for special work in pasteurization. The total expense of the course, including board, room rent, suits, fees, and text-books, need not exceed \$70 for residents of Wisconsin.

## SUMMER DAIRY SCHOOL.

Students are admitted to the summer dairy school at any time during the spring and summer after March 1. No previous experi-

ence in dairy work is required. Most of the time the student is occupied in the practical work of the different departments. Residents of Wisconsin pay a fee of \$10, and nonresidents, \$25.

### WYOMING.

**College of Agriculture of the University of Wyoming, Laramie.**

Chas. Willard Lewis, M. S., *President of the University.*

B. C. Buffum, M. S., *Professor of Agriculture.*

#### WINTER COURSE IN ANIMAL HUSBANDRY.

Short courses in stock judging, stock feeding, and ranch management are planned for the winter months of 1904. There is also some thought of offering a course in irrigation, to include instruction in water measurements, the use of the water supply, and some of the agricultural phases of irrigation.



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